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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,370	09/11/2003	Toru Nishizawa	023971-0309	3007
22428	7590	05/04/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/659,370	NISHIZAWA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

This office action is in response to the amendment filed January 24, 2005.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

***Claims 1-6, and 8-9 are rejected under 35 U.S.C. 102 (b) as being anticipated by Ogawa et al. (Ogawa) (Patent Number 5,713,197).***

Regarding claims 1, and 8-9, Ogawa discloses an exhaust gas purifying system for an internal combustion engine (1), comprising: an exhaust gas purifying catalyst (15) disposed in an exhaust gas passage of the engine to remove an exhaust gas component; a concentration sensor (17) disposed in the exhaust gas passage downstream of the exhaust gas purifying catalyst to detect a concentration of the exhaust gas component; and a control unit (5) programmed to carry out detecting an activity transition time at which the exhaust gas purifying catalyst changes from an inactive state to an active state, in accordance with the concentration of the exhaust gas component detected by the concentration sensor, and judging a deterioration of the exhaust gas

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purifying catalyst at the activity transition time (e.g. See col. 11, lines 45-67; col. 12, lines 1-67; col. 13, lines 1-62).

Regarding claim 2, Ogawa further discloses that the control unit (5) is programmed to carry out the deterioration judging only immediately after a starting of the engine and during a warming-up transition time period in which the engine changes from a cold condition to a warmed-up condition (e.g. See col. 12, lines 5-67).

Regarding claim 3, Ogawa further discloses that the control unit is programmed to carry out the activity transition time detecting in response to a time at which the concentration of the exhaust gas component changes from a state higher than a judgment concentration to a state lower than the judgment concentration (e.g. See col. 11, lines 45-67; col. 12, lines 1-67; col. 13, lines 1-62).

Regarding claim 4, Ogawa further discloses that the control unit is programmed to carry out the deterioration judging in response to a condition in which a temperature of the exhaust gas purifying catalyst is higher than a judgment temperature at the activity transition time (e.g. See col. 11, lines 45-67; col. 12, lines 1-67; col. 13, lines 1-62).

Regarding claim 5, Ogawa further discloses that the control unit is programmed to carry out the deterioration judging in response to a condition in which a lapsed time of from a time of starting of the engine to the activity transition time is longer than a judgment time (e.g. See col. 11, lines 45-67; col. 12, lines 1-67; col. 13, lines 1-62).

Regarding claim 6, Ogawa further discloses that the exhaust gas purifying catalyst is a NOx trap catalyst of a type wherein NOx is adsorbed in an oxidation atmosphere and released in

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a reduction atmosphere, wherein the concentration sensor is a NO<sub>x</sub> sensor for detecting a concentration of NO<sub>x</sub> (e.g. See col. 11, lines 45-67; col. 12, lines 1-67; col. 13, lines 1-62).

*Allowable Subject Matter*

Claim 7 is allowed.

The following is an examiner's statement of reasons for allowance: The prior art fails to disclose or render obvious the claimed combination including a NO<sub>x</sub> sensor disposed in the exhaust gas passage downstream of the exhaust gas purifying catalyst to detect a concentration of the exhaust gas component; and a control unit programmed to carry out detecting an activity transition time at which the exhaust gas purifying catalyst changes from an inactive state to an active state, in accordance with the concentration of the exhaust gas component detected by the concentration sensor, and judging a deterioration of the exhaust gas purifying catalyst at the activity transition time, accomplishing a compulsory sulfur poisoning releasing processing for the NO<sub>x</sub> trap catalyst after an initial judgment of the deterioration of the NO<sub>x</sub> trap catalyst, judging as to whether the NO<sub>x</sub> trap catalyst is subjected to a sulfur poisoning after a second judgment of the deterioration of the NO<sub>x</sub> trap catalyst and after the sulfur poisoning releasing processing, and generating a warning when the NO<sub>x</sub> trap catalyst is judged not to be subjected to the sulfur poisoning.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

### ***Response to Arguments***

Applicant's arguments filed January 24, 2005 have been fully considered but they are not completely persuasive. Claims 1-9 are pending.

Applicants have argued that Ogawa does not teach or suggest Applicants's claimed invention. More specifically, Applicants assert that the reference to Ogawa fails to disclose the steps of detecting an activity transition time in accordance with the detected concentration of the exhaust gas component, and judging a deterioration of the exhaust gas purifying catalyst at the activity transition time. The examiner respectfully disagrees, in column 12, lines 9-67; and column 13, lines 1-20, Ogawa has clearly disclosed that "If the answer is affirmative (YES), i.e. if the engine is in the starting mode, the catalyst deterioration detection is not carried out, but a deterioration detection flag FCATA is set to "0" at a step S82, and a timer tmCCATA which measures a time period elapsed from the start of the engine is set to a predetermined time period T2 (e.g. 120 sec) at a step S83. Then, a determination time period variable CAC for calculation of the average value, etc., an average value VAO of the output value VO2 from the O2 sensor 17, a variance value VSO, an integrated value VCAF of the output value VO2, and a squared integrated value VCAS of the output VO2 are all set to "0" at steps S84 to S88, followed by terminating the routine. On the other hand, if the answer to the question at the step S81 is

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negative (NO), i.e. if the engine is in the basic operating mode, it is determined at a step S89 whether or not the timer tmCCATA has been set to "0". If the answer is affirmative (YES), which means that the predetermined time period T2 has already elapsed, and then it is determined at a step S90 whether or not the engine coolant temperature TW sensed by the TW sensor 10 is higher than a predetermined lower limit value TWCATA (e.g. 80.degree. C.). If the answer is affirmative (YES), it is judged that the engine has been warmed up, and then it is determined at a step S91 whether or not the catalyst bed temperature TC sensed by the TC sensor 18 is higher than a predetermined lower limit value TCCATA (e.g. 380.degree. C.) If the answer is affirmative (YES), it is determined that the catalyst 15 has been activated, ... If the answer to the question at the step S93 is affirmative (YES), which means that a load condition satisfying the engine steady operating condition is satisfied, and then the program proceeds to a step S94, wherein it is determined whether or not the deterioration detection flag FCATA is set to "0". If the answer is affirmative (YES), i.e. if the catalyst deterioration detection has not yet been carried out, a catalyst deterioration-detecting routine of FIG. 7 is executed at a step S95, followed by terminating the program. If the answer to the question of any of the steps S89 to S94 is negative (NO), the program is immediately terminated without carrying out the catalyst deterioration detection. According to the FIG. 6 main routine, the catalyst deterioration detection is carried out by the routine of FIG. 7 only when a predetermined time period has elapsed after the start of the engine, the engine is in a predetermined operating condition wherein the engine coolant temperature TW and the catalyst bed temperature TC are higher than respective predetermined values, the engine rotational speed NE and the intake pipe absolute pressure PBA are within respective predetermined ranges, and at the same time the catalyst

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*deterioration detection has not been carried out after the start of the engine. Since the catalyst deterioration detection is carried out when the engine is in the predetermined operating condition in which the catalyst deterioration detection can be made by the use of the output from the O2 sensor which is then stable, i.e. when the air-fuel ratio feedback control is being effected, accurate detection results can be obtained. Further, when the answer at the step S94 is negative (NO), it means that the catalyst deterioration detection has already been carried out, making it unnecessary to carry out the detection again.* “. It is clearly that Ogawa has show the steps of detecting an activity transition time in accordance with the detected concentration of the exhaust gas component, and judging a deterioration of the exhaust gas purifying catalyst at the activity transition time.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



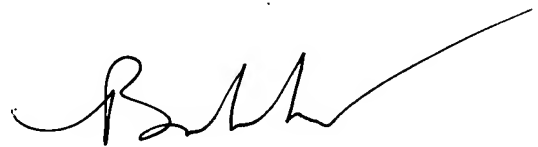
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT  
April 30, 2005



Binh Q. Tran  
Patent Examiner  
Art Unit 3748